REMARKS

In the non-final Office Action, the Examiner rejected claim 3 under 35 U.S.C. § 112, second paragraph, as indefinite; rejected claims 1, 2, 4, 5, 7, 9-13, 15, 16, and 18 under 35 U.S.C. § 102(e) as anticipated by Yamada et al. (U.S. Patent Publication No. 2003/0137933); rejected claims 3, 8, and 14 under 35 U.S.C. § 103(a) as unpatentable over Yamada et al. in view of Heeren et al. (U.S. Patent No. 6,311,288); and rejected claims 6 and 17 under 35 U.S.C. § 103(a) as unpatentable over Yamada et al. in view of Nagata et al. (U.S. Patent No. 6,181,680).

Applicant respectfully traverses the Examiner's rejections under 35 U.S.C. §§ 112, 102, and 103. Claims 1-18 remain pending.

REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

At paragraph 3 of the Office Action, the Examiner rejected claim 3 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. The Examiner alleged that the claim language of claim 3 is not clearly understood because claim 3 recites switching from a currently used PVC connection to the currently used PVC connection, resulting in no switching taking place. Applicant respectfully disagrees.

To clarify what is recited in claim 3, it may be beneficial to first discuss claim 2 from which claim 3 depends. Claim 2 recites that if, while one of the PVC connections is used as a currently used PVC connection, it is detected from the corresponding controlling connection that trouble has occurred with the currently used PVC connection, then each of the exchanges switches the operative PVC connection to another one of the PVC connections as a bypassing PVC connection. In other words, claim 2 recites that the operative PVC connection is switched from the currently used PVC connection to the bypassing PVC connection.

Now, claim 3 recites that if, while the <u>bypassing PVC connection</u> is used, it is detected that the <u>currently used PVC connection</u> has been released through the corresponding controlling connection, then each of the exchanges switches the <u>operative PVC connection</u> to the <u>currently used PVC connection</u>. Since the operative PVC connection has been switched to the bypassing PVC connection in claim 2, claim 3 recites switching from the bypassing PVC connection to the currently used PVC connection, and not from the currently used PVC connection to the currently used PVC connection, as alleged by the Examiner.

For at least these reasons, Applicant submits that claim 3 is definite under 35 U.S.C. § 112. Reconsideration and withdrawal of the rejection of claim 3 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

REJECTION UNDER 35 U.S.C. § 102 BASED ON <u>YAMADA ET AL.</u>

In paragraphs 5-17 of the Office Action, the Examiner rejected claims 1, 2, 4, 5, 7, 9-13, 15, 16, and 18 under 35 U.S.C. § 102(e) as allegedly anticipated by <u>Yamada et al.</u> Applicant respectfully traverses the rejection.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. <u>Yamada et al.</u> does not disclose or suggest the combination of features recited in claims 1, 2, 4, 5, 7, 9-13, 15, 16, and 18.

Independent claim 1, for example, is directed to a PVC switching control method for controlling a PVC connection in a communication network. The PVC switching control method comprises setting a plurality of PVC connections and individually corresponding controlling

connections between two exchanges of the communication network; detecting, by each of the exchanges, occurrence of or release from trouble with a PVC connection through the corresponding controlling connection; and switching an operative PVC connection to another one of the PVC connections in response to a result of the detection.

Yamada et al. does not disclose or suggest the combination of features recited in claim 1. For example, Yamada et al. does not disclose or suggest setting a plurality of PVC connections and individually corresponding controlling connections between two exchanges of a communication network.

The Examiner alleged that Yamada et al. discloses primary connections, which allegedly correspond to a plurality of PVC connections in claim 1, and corresponding reserve relay connections, which allegedly correspond to the individually corresponding controlling connections recited in claim 1, and cited Figs. 2 and 3 and paragraphs 0009, 0042, 0046, and 0048 of Yamada et al. for support (Office Action, paragraph 6). Applicant respectfully submits that this is an unreasonable interpretation of the disclosure of Yamada et al.

First Applicant notes that the Examiner alleged that the reserve relay connections described by Yamada et al. (described, for example, at paragraphs 0041-0042) allegedly correspond to the "individually corresponding controlling connections" recited in claim 1 (Office Action, paragraph 6). Applicant respectfully submits that this is an unreasonable allegation. With this interpretation in mind, nowhere does Yamada et al. disclose or remotely suggest detecting occurrence of or release from trouble with a PVC connection through the reserve relay connections, as would be required by claim 1. When addressing this additional feature of claim 1, the Examiner alleged that the control PVCs (described, for example, at paragraph 0043), and

not the reserve relay connections, correspond to the individually corresponding controlling connections recited in claim 1 (Office Action, paragraph 6). This change in the rejection further supports Applicant's point that it is unreasonable to allege that the reserve relay connections are equivalent to the individually corresponding controlling connections, as recited in claim 1.

With the Examiner's latter interpretation in mind (i.e., that the control PVCs are allegedly equivalent to the individually controlling connections), Applicant continues to submit that Yamada et al. does not disclose or suggest setting a plurality of PVC connections and individually corresponding controlling connections between two exchanges of a communication network, as required by claim 1.

In Fig. 2, Yamada et al. shows an example of a relay connection management table (paragraph 0046). Nowhere in connection with Fig. 2, or elsewhere, does Yamada et al. disclose or remotely suggest setting a plurality of PVC connections and individually corresponding controlling connections (which the Examiner alleged were equivalent to control PVCs) between two exchanges, as required by claim 1. In fact, none of the figures or description of Yamada et al. provides a control PVC set up for each corresponding PVC connection, as would be required by claim 1.

In Fig. 3, Yamada et al. shows two exchanges being connected via two lines X and Y and a control PVC being set up for only line X. Nowhere in connection with Fig. 3, or elsewhere, does Yamada et al. disclose or remotely suggest setting a plurality of PVC connections and individually corresponding controlling connections (which the Examiner alleged were equivalent to control PVCs) between two exchanges, as required by claim 1. In fact, none of the figures or

description of <u>Yamada et al.</u> provides a control PVC set up for each corresponding PVC

connection, as would be required by claim 1.

In paragraph 0009, <u>Yamada et al.</u> discloses:

> According to the present invention, there is provided a line backup method comprising the steps of: setting up a permanent virtual connection on a line connecting between a first exchange unit and a second exchange unit; performing periodic communication between the first exchange unit and the second exchange unit using the permanent virtual connection; detecting a failure of the line by monitoring the periodic communication at each of the first and second exchange units; and switching a connection on the line, at each of the first and second exchange units, to a reserve connection not using the same line, in the event that a failure of the line is detected.

In this section, <u>Yamada et al.</u> discloses setting up a PVC on a line connecting two exchange units

and detecting a failure on the line by monitoring periodic communication using the PVC.

Nowhere in this section, or elsewhere, does <u>Yamada et al.</u> disclose or suggest setting a plurality

of PVC connections and individually corresponding controlling connections (which the

Examiner alleged were equivalent to control PVCs) between two exchanges, as required by claim

1.

In paragraph 0042, <u>Yamada et al.</u> discloses:

> In the exchange unit A, reference character A1 is a periodic communication processing block which performs periodic communication with the exchange unit B using the control PVC, A2 is a line failure detection block which determines that a line failure has occurred when the information being communicated is interrupted, and A3 is a relay connection switchover processing block which, when a line failure is detected, retrieves a relay connection accommodated on the failed line and a reserve connection corresponding to it from a relay connection management table A5, and performs the processing to cut off the affected connection and set up the corresponding reserve relay connection.

In this section, <u>Yamada et al.</u> discloses that periodic communication takes place on the control

PVC and a line failure is determined to have occurred when the information being communicated

is interrupted. Nowhere in this section, or elsewhere, does <u>Yamada et al.</u> disclose or suggest

setting a plurality of PVC connections and individually corresponding controlling connections

(which the Examiner alleged were equivalent to control PVCs) between two exchanges, as

required by claim 1.

In paragraph 0046, Yamada et al. discloses:

> FIG. 2 is a diagram showing an example of the configuration of the relay connection
> management table A5. The relay connection management table A5 is accessed by line
> number. For each line number, the relay connection management table A5 stores local
> node number 14a, remote-end node number 14b, reserve line remote-end node number
> 14c, reserve line number 14d, primary connection VP identifier 14e, primary connection
> VC identifier 14f, backup connection VP identifier 14g, backup connection VC identifier
> 14h, backup connection QOS 14i, backup connection usage bandwidth 14j, other backup
> connection attributes 14k, other node relay flag 14l, and opposite-end line backup
> indicating flag 14m.

In this section, Yamada et al. describes a relay connection management table. Nowhere in this

section, or elsewhere, does Yamada et al. disclose or remotely suggest setting a plurality of PVC

connections and individually corresponding controlling connections (which the Examiner alleged

were equivalent to control PVCs) between two exchanges, as required by claim 1.

In paragraph 0048, Yamada et al. discloses:

> FIG. 4 is a diagram showing an example of the configuration of the terminating
> connection management table. The table stores, for each line number, local node number
> 16a, remote-end node number 16b, reserve line remote-end node number 16c, reserve
> line number 16d, primary connection VP identifier 16e, primary connection VC
> identifier 16f, backup connection VP identifier 16g, backup connection VC identifier
> 16h, backup connection QOS 16i, backup connection usage bandwidth 16j, and other
> alternate connection attributes 16k.

In this section, Yamada et al. describes another example of a relay connection management table.

Nowhere in this section, or elsewhere, does Yamada et al. disclose or remotely suggest setting a

plurality of PVC connections and individually corresponding controlling connections (which the

Examiner alleged were equivalent to control PVCs) between two exchanges, as required by claim 1.

For at least these reasons, Applicant submits that claim 1 is not anticipated by Yamada et al. Claims 2, 4, and 5 depend from claim 1 and are, therefore, not anticipated by Yamada et al. for at least the reasons given with regard to claim 1. Claims 2, 4, and 5 are also not anticipated by Yamada et al. for reasons of their own.

For example, claim 4 recites that the controlling connections are set by an operation administration and maintenance function. Yamada et al. does not disclose or suggest the combination of features recited in claim 4. The Examiner alleged that Yamada et al. discloses that controlling connections are set by an operation administration and maintenance function and cited paragraph 0006 of Yamada et al. for support (Office Action, paragraph 8). Applicant respectfully disagrees.

At paragraph 0006, Yamada et al. discloses:

> This method, therefore, cannot handle logical failures (e.g., software failure) occurring within an exchange unit. It is also not possible to provide for voluntary switchover performed through maintenance and administration operations from a maintenance console, etc. If a connection between exchange units is to be switched manually, the only possible way is to issue a command to switch the connection from each of the maintenance consoles connected to the exchange units at both ends, and it is, therefore, not possible to switch the connection in a synchronized fashion between the exchange units.

In this section, Yamada et al. refers to a prior art technique that uses a virtual channel (VC) alarm indication signal (AIS) operation administration and maintenance (OAM) cell to detect the occurrence of a failure (see, e.g., paragraph 0005). Yamada et al. discloses disadvantages of using OAM cells to perform a switchover. Therefore, contrary to the Examiner's allegation, Yamada et al. does not disclose controlling connections that are set by an operation

administration and maintenance function, as required by claim 4, but instead teaches away from these features.

For at least these additional reasons, Applicant submits that claim 4 is not anticipated by Yamada et al.

Claim 5 recites that each of the exchanges detects trouble through receipt of an alarm indication signal cell from the operation administration and maintenance function over one of the controlling connections. Yamada et al. does not disclose or suggest this combination of features. The Examiner alleged that Yamada et al. discloses that each of the exchanges detects trouble through receipt of an alarm indication signal cell from the operation administration and maintenance function over one of the controlling connections and cited paragraph 0005 of Yamada et al. for support (Office Action, paragraph 9). Applicant respectfully disagrees.

At paragraph 0005, Yamada et al. discloses:

> A connection-by-connection switchover control method for Virtual Channels (VCs) is disclosed in Japanese Unexamined Patent Publication No. 9-93260. However, since this method uses a VC AIS (Alarm Indication Signal) OAM cell to detect the occurrence of a failure and switch the connection, if transmission/reception of the OAM signal becomes impossible because of the failure, the switchover operation cannot be performed.

In this section, Yamada et al. discloses a prior art technique that uses a virtual channel (VC) alarm indication signal (AIS) operation administration and maintenance (OAM) cell to detect the occurrence of a failure. In paragraph 0006, Yamada et al. discloses disadvantages of using OAM cells to perform a switchover. Therefore, contrary to the Examiner's allegation, Yamada et al. does not disclose that each of the exchanges detects trouble through receipt of an alarm indication signal cell from the operation administration and maintenance function over one of the controlling connections, as required by claim 5, but instead teaches away from these features.

For at least these additional reasons, Applicant submits that claim 5 is not anticipated by Yamada et al.

Independent claim 7 is directed to a PVC switching control method for controlling a PVC connection in a communication network. The method comprises setting a master PVC connection and a master side operation administration and maintenance (OAM) connection corresponding to the master PVC connection between a first exchange and a second exchange; setting a bypassing PVC connection prepared in advance for bypassing of the master PVC connection and a bypassing side OAM connection corresponding to the bypassing PVC connection between the first and second exchanges; and switching, if both of the first and second exchanges detect trouble of the master PVC connection through the master side OAM connection, the master PVC connection to the bypassing PVC connection at the first and second exchanges.

Yamada et al. does not disclose or suggest the combination of features recited in claim 7. For example, Yamada et al. does not disclose or suggest setting a bypassing PVC connection prepared in advance for bypassing of a master PVC connection and a bypassing side OAM connection corresponding to the bypassing PVC connection between first and second exchanges.

The Examiner alleged that Yamada et al. discloses a set of reserve line connections, which the Examiner alleged was equivalent to bypassing PVC connections and cited Figs. 2 and 4, and paragraphs 0046 and 0048 of Yamada et al. for support (Office Action, paragraph 10). Regardless of the accuracy of the Examiner's allegation, Applicant submits that the Examiner did not fully address the features of claim 7. Claim 7 recites setting <u>a bypassing PVC connection</u> prepared in advance for bypassing of the master PVC connection <u>and a bypassing side OAM</u>

connection corresponding to the bypassing PVC connection between the first and second

exchanges. Yamada et al. discloses nothing similar to a bypassing side OAM connection, as

required by claim 7. The Examiner did not address this portion of claim 7 and, therefore, did not

establish a proper case of anticipation with regard to claim 7.

In Fig. 2, Yamada et al. shows an example of a relay connection management table

(paragraph 0046). Nowhere in connection with Fig. 2, or elsewhere, does Yamada et al. disclose

or remotely suggest setting a bypassing PVC connection prepared in advance for bypassing of a

master PVC connection and a bypassing side OAM connection corresponding to the bypassing

PVC connection between first and second exchanges, as required by claim 7.

In Fig. 4, Yamada et al. describes another example of a relay connection management

table. Nowhere in connection with Fig. 4, or elsewhere, does Yamada et al. disclose or remotely

suggest setting a bypassing PVC connection prepared in advance for bypassing of a master PVC

connection and a bypassing side OAM connection corresponding to the bypassing PVC

connection between first and second exchanges, as required by claim 7.

Paragraph 0046 of Yamada et al. has been reproduced above. In this section, Yamada et

al. describes a relay connection management table. Nowhere in this section, or elsewhere, does

Yamada et al. disclose or remotely suggest setting a bypassing PVC connection prepared in

advance for bypassing of a master PVC connection and a bypassing side OAM connection

corresponding to the bypassing PVC connection between first and second exchanges, as required

by claim 7.

Paragraph 0048 of Yamada et al. has been reproduced above. In this section, Yamada et

al. describes another example of a relay connection management table. Nowhere in this section,

or elsewhere, does <u>Yamada et al.</u> disclose or remotely suggest setting a bypassing PVC connection prepared in advance for bypassing of a master PVC connection and a bypassing side OAM connection corresponding to the bypassing PVC connection between first and second exchanges, as required by claim 7.

For at least these reasons, Applicant submits that claim 7 is not anticipated by <u>Yamada et al.</u> Claims 9 and 10 depend from claim 7 and are, therefore, not anticipated by <u>Yamada et al.</u> for at least the reasons given with regard to claim 7.

Independent claim 11 recites features similar to, but possibly different in scope from, features recited in claim 1. Claim 11 is, therefore, not anticipated by <u>Yamada et al.</u> for at least reasons similar to reasons given with regard to claim 1. Claims 12, 13, 15, and 16 depend from claim 11 and are, therefore, not anticipated by <u>Yamada et al.</u> for at least the reasons given with regard to claim 11. Claims 12, 13, 15, and 16 are also not anticipated by <u>Yamada et al.</u> for reasons of their own. For example, claims 12, 13, 15, and 16 recite features similar to, but possibly different in scope from, features recited in claims 2, 4, and 5. Therefore, claims 12, 13, 15, and 16 are not anticipated by <u>Yamada et al.</u> for at least reasons similar to reasons given with regard to claims 2, 4, and 5.

Independent claim 18 recites features similar to, but possibly different in scope from, features recited in claim 7. Claim 18 is, therefore, not anticipated by <u>Yamada et al.</u> for at least reasons similar to reasons given with regard to claim 7.

For at least the foregoing reasons, Applicant respectfully requests the Examiner's reconsideration and withdrawal of the rejection of claims 1, 2, 4, 5, 7, 9-13, 15, 16, and 18 under 35 U.S.C. § 102 based on <u>Yamada et al.</u>

REJECTION UNDER 35 U.S.C. § 103 BASED ON <u>YAMADA ET AL.</u> AND <u>HEEREN ET AL.</u>

In paragraphs 19-22 of the Office Action, the Examiner rejected claims 3, 8, and 14 under

35 U.S.C. § 103(a) as allegedly unpatentable over <u>Yamada et al.</u> in view of <u>Heeren et al.</u>

Applicant respectfully traverses the rejection.

Claim 3 depends from claim 1. The disclosure of <u>Heeren et al.</u> does not cure the

deficiencies in the disclosure of <u>Yamada et al.</u> identified above with regard to claim 1. Claim 3

is, therefore, patentable over <u>Yamada et al.</u> and <u>Heeren et al.</u>, whether taken alone or in any

reasonable combination, for at least the reasons given with regard to claim 1.

Claim 3 is also patentable for reasons of its own. For example, claim 3 recites that if,

while the bypassing PVC connection is used, it is detected that the currently used PVC

connection has been released through the corresponding controlling connection, then each of the

exchanges switches the operative PVC connection to the currently used PVC connection.

Neither <u>Yamada et al.</u> nor <u>Heeren et al.</u>, whether taken alone or in any reasonable combination,

discloses or suggests the combination of features recited in claim 3.

The Examiner admitted that Yamada does not disclose the features of claim 3 (Office

Action, paragraph 20). The Examiner alleged, however, that <u>Heeren et al.</u> discloses the features

of claim 3 and cited the abstract and column 3, lines 50-57, of <u>Heeren et al.</u> for support (Office

Action, paragraph 20). Applicant disagrees.

The abstract of <u>Heeren et al.</u> discloses:

> A system and method for the detection of permanent virtual circuit failures in a
> communication network determines and classifies failures based upon physical or logical
> criteria. Upon detection of a physical failure or a logical failure the virtual circuit backup
> logic will establish an alternate path in order to selectively reroute information avoiding
> the failed primary path. Once the primary path is again available, the logic of the present

invention will restore the communication from the alternate path to the primary path. The
virtual circuit backup logic will selectively provide an alternate path for communication
traffic on a per data link connection identifier (DLCI) basis, thus enabling a single link to
be backed up over multiple links.

In this section, Heeren et al. discloses that upon detection of a failure in a primary path, an

alternate path will be established and when the primary path becomes available, communication

will be restored on the primary path. Nowhere in this section, or elsewhere does Heeren et al.

disclose or suggest if, while the bypassing PVC connection is used, it is detected that the

currently used PVC connection has been released through the corresponding controlling

connection, then each of the exchanges switches the operative PVC connection to the currently

used PVC connection, as required by claim 3. In other words, claim 3 recites that the currently

used PVC connection is detected to have been released through the corresponding controlling

connection. Heeren et al. discloses nothing similar to a corresponding controlling connection, as

required by claim 3.

At column 3, lines 50-57, Heeren et al. discloses:

Therefore, it would be desirable to provide a system and method that will detect the
failure of a physical link, as well as the failure of a logical link, in a frame relay network
and perform backup based upon the physical failure, and furthermore, that will
selectively configure the establishment of a backup circuit and restore the primary circuit
based upon the particular virtual circuit failure that occurs.

Nowhere in this section, or elsewhere does Heeren et al. disclose or suggest if, while the

bypassing PVC connection is used, it is detected that the currently used PVC connection has been

released through the corresponding controlling connection, then each of the exchanges switches

the operative PVC connection to the currently used PVC connection, as required by claim 3.

Heeren et al. discloses nothing similar to a corresponding controlling connection, as required by

claim 3.

For at least these additional reasons, Applicant submits that claim 3 is patentable over Yamada et al. and Heeren et al., whether taken alone or in any reasonable combination.

Claim 8 depends from claim 7. The disclosure of Heeren et al. does not cure the deficiencies in the disclosure of Yamada et al. identified above with regard to claim 7. Claim 8 is, therefore, patentable over Yamada et al. and Heeren et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claim 7.

Claim 8 is also patentable for reasons of its own. For example, claim 8 recites features similar to, but possibly different in scope from, features recited in claim 3. Claim 8 is, therefore, also patentable over Yamada et al. and Heeren et al. for at least reasons similar to reasons given with regard to claim 3.

Claim 14 depends from claim 11. The disclosure of Heeren et al. does not cure the deficiencies in the disclosure of Yamada et al. identified above with regard to claim 11. Claim 14 is, therefore, patentable over Yamada et al. and Heeren et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claim 11.

Claim 14 is also patentable for reasons of its own. For example, claim 14 recites features similar to, but possibly different in scope from, features recited in claim 3. Claim 14 is, therefore, also patentable over Yamada et al. and Heeren et al. for at least reasons similar to reasons given with regard to claim 3.

For at least the foregoing reasons, Applicant respectfully requests the Examiner's reconsideration and withdrawal of the rejection of claims 3, 8, and 14 under 35 U.S.C. § 103 based on Yamada et al. and Heeren et al.

REJECTION UNDER 35 U.S.C. § 103 BASED ON YAMADA ET AL. AND NAGATA ET AL.

In paragraphs 23-25 of the Office Action, the Examiner rejected claims 6 and 17 under 35 U.S.C. § 103(a) as allegedly unpatentable over Yamada et al. in view of Nagata et al. Applicant respectfully traverses the rejection.

Claims 6 and 17 depend from claims 1 and 11, respectively. Without acquiescing in the Examiner's rejection, Applicant submits that the disclosure of Nagata et al. does not cure the deficiencies in the disclosure of Yamada et al. identified above with regard to claims 1 and 11. Claims 6 and 17 are, therefore, patentable over Yamada et al. and Nagata et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claims 1 and 11.

For at least the foregoing reasons, Applicant respectfully requests the Examiner's reconsideration and withdrawal of the rejection of claims 6 and 17 under 35 U.S.C. § 103 based on Yamada et al. and Nagata et al.
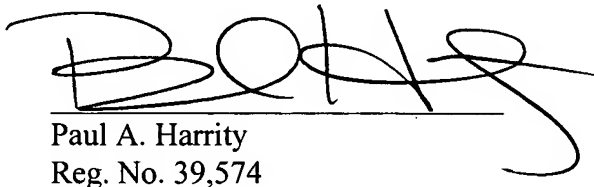
CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests the Examiner's reconsideration of the application and the timely allowance of pending claims 1-18.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is

hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess

fees to such deposit account.

Respectfully submitted,

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